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Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 March 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-20</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 December 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/1/04</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

1. Claims 1-20 are pending in Instant Application.

Information Disclosure Statement

2. The information disclosure statement(s) (IDS) submitted on 3/1/2004 is/are in compliance with the

    provisions of 37 CFR 1.97. Accordingly, the information disclosure statement(s) is/are being

    considered by the examiner if signed and initialized.

Claim Rejections - 35 USC § 101

> 35 U.S.C. 101 reads as follows:
> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
>
> **MPEP 2106 recites, in part:**
> A process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459.

3. Claims 8-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-

    statutory subject matter.

3.1 The method claims 8-15 do not produce a useful, tangible, and concrete **result**. The steps of the

    method claims do not produce a useful, tangible, and concrete result. They merely recite a software

    algorithm, *per se*, which, for example, does not display, store, or otherwise provide a useful and

    tangible output. Note exemplary claim 8 which only recites software steps and does not produce a

    useful tangible and concrete result. Transmission of data through a non-tangible medium is not

    considered a production of a tangible result.

Claim Interpretation

4. Geographically separated location is interpreted to mean different location.

5. The "devices" of claims 1-7 and 16-20 are tangible hardware.

6. As per claim limitations having code for performing an action, the action is merely intended use and

    not given patentable weight because execution of the code does not take place. Note exemplary

    claim 1 which recites "said provider edge devices includes code for adding a demultiplexing header

    onto data units prior to said data units being transmitted along said signal transmission path."

Claim Objections

7. Claims 2-7 9-15 17-20 are objected to for not following USPTO claim formulation guidelines:

   dependent claims should start with the word "The". For example, claim 2 should recites, in part:

   "The apparatus as claimed in claim 1..."

Appropriate action required.

Claim Rejections - 35 USC § 112

> The following is a quotation of the first paragraph of 35 U.S.C. 112:
> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 6, 8-15 and 18-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

   the **enablement requirement**. The claim(s) contains subject matter which was not described in

   the specification in such a way as to enable one skilled in the art to which it pertains, or with which it

   is most nearly connected, to make and/or use the invention.

As per claim 6, the phrases "layer-2 transport technology" and "layer-3 transport technology" are fail to

comply with the enablement requirement. Specifically, the claims do not enable one of ordinary skill in

the art to make and use the invention without undue experimentation because they do not enable the

use of layer-2 and layer-3 "transport technology". What encompasses layer-2/3 transport technology? It

appears that features and what the Applicant means by "transport technology" are not clearly defined.

As per claim 18, note the rejection of claim 6 above. The same reasoning and questioning is applied to

the phrase "layer-2 transport technology".

As per claim 8, the claim does not enable one of ordinary skill in the art to make and use the invention

without undue experimentation because it does not enable "service emulation".

As per claim 20, the term "Martini" is not enabled. What is Martini? How does it work? What is its

function? How is it implemented?

9. Claims 6, 8-15 and 18-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

   the **written description requirement**. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant art

that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As per claim 6, the phrases "layer-2 transport technology" and "layer-3 transport technology" are not

reasonable conveyed in the Specification. The Specification further fails to set the metes and bounds for

this term. What encompasses layer-2/3 transport technology?

As per claim 8, the phrase "demultiplexing header" is not adequately disclosed in the Specification such

that it conveys that the inventor(s) at the time of the application was filed had possession of the claimed

invention. What is a demultiplexing header? How is it created? What information does it contain? How is

it used?

As per claim 8, the claim fails to comply with the written description requirement because the

Specification does not adequately disclose "service emulation". Specifically, how is the service emulation

performed? What device is performing the emulation? What are the "services" being emulated?

As per claim 18, the phrase "layer-2 transport technology" is not reasonable conveyed in the

Specification. The Specification further fails to set the metes and bounds for this term. It appears that

features and what the Applicant means by "transport technology" are not clearly defined.

As per claim 16, the phrase "automatically discovering" is not reasonably conveyed in the Specification.

Specifically, how is the automatic discovery initiated? How does it take place? What does the automatic

discovery work? What does it do?

As per claim 20, the term "Martini" is not disclosed in the Specification such that it conveys to one of

ordinary skill in the art that the inventors had possession of the claimed invention at the time of the filing.

Specifically, the Application does not mention Martini, how it works, or what it is.

10. The above-cited rejections are merely exemplary.

11. The Applicant(s) are respectfully requested to correct all similar errors. Claims not specifically

mentioned are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under

this section made in this Office action:

> A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-3, and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Holden **(Pub No 2002/0176415 A1)**.

Holden discloses claim 1, An apparatus for emulating a layer-2 service over at least one network, the apparatus comprising:

> a signal transmission path **(para 5 "path through the network")**;

> two provider edge devices located at opposite ends of said signal transmission path **(As shown in FIG. 10, device 120, para 37 discloses that device 120 serves as both a channelizer (mux) / dechannelizer (demux); Fig 7 and 8. The "network" has two provider edge devices, 120 and 124 on opposite ends of the transmission path (network); Fig. 10, 7, 8 and texts which further expand on their features; para 52)**; and

> a provider device located along said signal transmission path such that said provider device divides said signal transmission path into segments **(Fig 10. Item 120, 124; para 37 "channelizer" splits the information into segments. Para 2 "Information sent between computers is typically divided into a collection of smaller pieces called protocol data units."; para 52 "multiplexer")**,

> wherein one of said provider edge devices includes code for adding a demultiplexing header onto data units prior to said data units being transmitted along said signal transmission path **(para 37 "dechannelizer"; para 52 demultiplexing "recombined" and "multiplexer/demultiplexer"; and para 11; para 22 receiver that reconstitutes the segmented data)**.

Holden discloses claim 2, An apparatus as claimed in claim 1 wherein said signal transmission path includes at least one of the following:

> an LSP, an IP tunnel, a GRE tunnel and an IPSec tunnel **(para 6; para 34 LSP ... "label-**

switch path"; para 31).

Holden discloses claim 3, An apparatus as claimed in claim 1 wherein said one of said provider edge

devices further includes code for encapsulating said data units prior to said data units being transmitted

along said signal transmission path **(para 52 "framers"; para 5 and 6 where the label is added to**

the data unit; this step is inherent. Specifically, the data units are encapsulated in packets /

frames.).

Holden discloses claim 16. A network system for emulating a layer-2 service, comprising:

> a signal transmission path having two ends **(para 5 "path through the network")**;

> a first provider edge device including means for adding a demultiplexing header onto data units

> prior to said data units being transmitted along said signal transmission path, said first provider

> edge device being located at a first end of said signal transmission path **(para 37**

> **"dechannelizer"; para 52 demultiplexing "recombined" and**

> **"multiplexer/demultiplexer"; and para 11; para 22 receiver that reconstitutes the**

> **segmented data)**;

> a second provider edge device being located at the opposite end of said signal transmission path

> **(As shown in FIG. 10, device 120, para 37 discloses that device 120 serves as both a**

> **channelizer (mux) / dechannelizer (demux); Fig 7 and 8. The "network" has two**

> **provider edge devices, 120 and 124 on opposite ends of the transmission path**

> **(network); Fig)**;

> means for automatically discovering said signal transmission path **(para 48)**; and

> a node located along said signal transmission path such that said node divides said signal

> transmission path into segments, wherein local switching occurs at said node **(para 5, 6, 8, 33;**

> **para 13 "multiplexer")**.

Holden discloses claim 17. A network system as claimed in claim 16 wherein said node include a hairpin

connection **(Fig 4 hairpin: client 102 to network to client 110).**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 4, 6-7, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden

(Pub No 2002/0176415 A1) as applied to claim 1 above, and further in view of Official Notice

taken.

As per claim 4, Holden discloses An apparatus as claimed in claim 1 wherein said provider edge devices

are directly connected to client edge devices that are devices in geographically separated **(Fig 4 client**

edge devices ... 102/104, provider edge devices 104, 112, 124). Holden however does not

expressly disclose that the client edge devices are in geographically separate VPLS segments. Official

Notice is taken with respect to this limitation. It would have been obvious to one of ordinary skill in the

art <computer networking, remote networking/working/communication> at the time of Applicant's

invention to combine the references in order to provide a secure/private method of communicating

between two remote clients. This is routinely used in "work-at-home" situations where the workers at

home connect to a VPLS. See, for example, Kawakami **(Pub No. 2001/0044842 A1)**.

As per claim 6, Holden discloses An apparatus as claimed in claim 3 wherein one of said segments

includes a layer-3 transport technology **(para 33)**. Holden however does not expressly disclose that

another of said segments includes a layer-2 transport technology. Official Notice is taken with respect to

this limitation. It would have been obvious to one of ordinary skill in the art <computer networking,

network administration> at the time of Applicant's invention to combine the references in order to

achieve backward compatibility and save costs. Rather than rebuilding infrastructure to newest transport

layers, an existing legacy stricture (layer 2, in this instance) can be used, thus saving costs. In fact,

Holden mentions that the use of "**variety** of network routing protocols (e.g., "layer 3 routing")," **(para 33)** thus providing motivation to have the missing feature.

As per claim 7, Holden discloses An apparatus as claimed in claim 4 wherein said one of said provider edge devices further includes code for adding an MPLS label onto said data units prior to said data units being transmitted along said signal transmission path **(para 24, 6, 8, 12)**.

As per claim 18, Holden discloses all limitations of claim 17. Holden however does not expressly disclose one of said segments includes a layer-2 transport technology. Official Notice is taken with respect to this limitation. It would have been obvious to one of ordinary skill in the art <computer networking, network administration> at the time of Applicant's invention to combine the references in order to achieve backward compatibility and save costs. Rather than rebuilding infrastructure to newest transport layers, an existing legacy stricture (layer 2, in this instance) can be used, thus saving costs. In fact, Holden mentions that the use of "**variety** of network routing protocols (e.g., "layer 3 routing")," **(para 33)** thus providing motivation to have the missing feature.

Holden discloses: 19. A network system as claimed in claim 18 wherein said network system connects a first and a second local area network, and said data units are transmitted from said first local area network to said second local area network **(para 8 and 53; para 7)**.

Holden discloses: 20. A network system as claimed in claim 19 wherein said network system supports at least two of the following: Martini, tunnelling protocol and MPLS **(para 6, 12)**. Holden however does not expressly disclose a network system that supports layer-2. Official Notice is taken with respect to this limitation. The motivation has been provided above **(For example, see claim 18)**.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holden **(Pub No 2002/0176415 A1)** as applied to claim 1 above, and further in view of Kawakami **(Pub No 2001/0044842 A1)** and further in view of BGP4.us's "BGP, Border Gateway Protocol / Advanced Internet Routing" ("BGP4").

As per claim 5, Holden discloses An apparatus as claimed in claim 3 wherein signalling associated with one of said segments is LDP signaling **(Holden: para 35)**. Holden however does not expressly disclose

that the signalling associated with another of said segments is BGP signalling. Kawakami however

discloses an analogous communication / VPN / networking system having the said features **(Kawakami:**

para 8, 9, 56). It would have been obvious to one of ordinary skill in the art <computer networking,

virtual private networking, network administration, ISP administration> at the time of Applicant's

invention to combine the references in order to allow the protocol to work effectively and efficiently

dealing with the size of the internet **(BGP4: see section annotated "motivation")**.

15. Claim 8-14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holden **(Pub No**

   2002/0176415 A1), and further in view of Applicants' own admissions.

As per claim 8, Holden discloses A method for emulating a layer-2 service over at least one network, the

method comprising the steps of: receiving a data unit at a first provider edge device **(fig 5 emphasis on**

item 166 and texts associated with its features); adding a demultiplexing header onto said data

unit **(Fig 5 emphasis on 156. label ... demultiplexing header and texts associated with its**

features; para 6 "add a label to the protocol data unit and transmit the protocol data unit to

a label switched router in the label switched path."); transporting said data unit along a signal

transmission path, said signal transmission path being divided into at least two segments by at least one

provider device **(para 6)**; receiving a data unit at a second provider edge device **(fig 5 and texts**

associated with its features); demultiplexing said data unit **(para 37 "dechannelizer"; para 52)**;

transmitting said data unit out of said second provider edge device **(Fig 5 item 162 and texts which**

further expand on its features). Holden however does not expressly disclose that there is service

emulation over at least one of said at least two segments. Applicants however have admitted that this

service emulation feature is well known **(para 4: "Local area network emulation (LANE) is a**

known protocol for building emulated services. LANE is used when the backbone is an ATM

network, and not where the backbone is an MPLS or IP network. LANE allows legacy

networks such as Ethernet, token ring, and fiber distributed data interface (FDDI) to use an

ATM network as backbone connections."). It would have been obvious to one of ordinary skill in the

art at the time of Applicant's invention to combine the references in order to allow support for legacy

networks and therefore not have to invest money in building protocol networks versus running

applications "on top of" the existing ones.

As per claim 9, note the rejection of claim 2 above. The Instant Claim is functionally equivalent to the

above-rejected claim and therefore rejected under same prior-art teachings.

Holden discloses claim 10. A method as claimed in claim 9 further comprising the step of transmitting a

data unit out of a local area network **(LAN: Comp Fig 4 110/102 and texts which further expand**

on the figure's features) before the step of receiving a data unit at a first provider edge device **(Item**

120 / 124 and texts which further expand on the figure's features; para 8 and 53; It is

inherent in Holden's disclosure that the system first adds a label, then transmits the data

unit. Therefore, it is inherent that the data is transmitted prior to being received by the

receiver device (first provider edge device)).

Holden discloses claim 11. A method as claimed in claim 10 further comprising the step of receiving a

data unit at another local area network **(para 8 and 53; para 7)**.

Holden discloses claim 12. A method as claimed in claim 9 wherein one of said at least two segments is

within an MPLS network **(para 6, 8, 12, 24, 30, 53)**.

Holden discloses claim 13. A method as claimed in claim 12 wherein said first provider edge device is an

ingress router, and said provider device and said first provider edge device are MPLS enabled routers

(para 6, 8, 12, 24, 30, 53; Fig 4 item 124 and texts which further expand on the ingress

router's features).

Holden discloses claim 14. A method as claimed in claim 13 further comprising the step of adding an

MPLS label onto said data unit before the step of transporting said data unit along a signal transmission

path **(para 6, 8, 12, 24, 53)**.

16. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holden **(Pub No**

   2002/0176415 A1), as applied to claim 8 above, in view of Applicants' own admissions, and

   further in view of Official Notice taken.

As per claim 15, Holden discloses An apparatus as claimed in claim 14 wherein one of said segments

includes a layer-3 transport technology **(para 33)**. Holden however does not expressly disclose that another of said segments includes a layer-2 transport technology. Official Notice is taken with respect to this limitation. It would have been obvious to one of ordinary skill in the art <computer networking, network administration> at the time of Applicant's invention to combine the references in order to achieve backward compatibility and save costs. Rather than rebuilding infrastructure to newest transport layers, an existing legacy stricture (layer 2, in this instance) can be used, thus saving costs. In fact, Holden mentions that the use of "variety of network routing protocols (e.g., "layer 3 routing")," **(para 33)** thus providing motivation to have the missing feature.

Conclusion

17. All claims are rejected.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 10am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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